J.E. REYNOLDS & ASSOCIATES

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March 21, 2000

Mr. Josh Epel
Gabelhouse & Epel
1050 17th Street
Suite 1730
Denver, CO 80265

Re: Rico Development Corp.
Civil Action 99-M-1386
St. Louis Tunnel Treatment System and Sedimentation Ponds
Site Visit, March 13,2000

Dear Josh:

The Rico Development water treatment site was inspected by myself and Terry McNulty on March 13 for the purposes of collecting samples and checking the condition of the treatment equipment and pond system.
Condition of the sedimentation ponds was difficult to determine due to deep snow cover up to the edge of the ponds. A phone conversation with Greg Brand, District Engineer, WQCD following our site inspection elicited his comments as to site condition:

- Buildup of settled solids downstream of the first pond (No. 18) is not significant.
- Debris consisting of vegetation and small branches is affecting free flow between some of the ponds. Mr. Brand estimates that a crew of three men could remove these partial obstructions in one day.
- He has not been able to inspect the condition of the treatment building interior because it is locked. McNulty and I looked through the windows and were unable to see evidence of any equipment except for MCC switch gear mounted on the wall.

An estimated flow of 200 to 400 GPM was exiting the St Louis adit. The water appeared clear with virtually no discoloration. Samples were taken of the flow between the tunnel discharge and the treatment building for treatability studies in Golden. A sample of sludge was taken from the edge of Pond 18 about 30 feet to the left of the pipe discharging tunnel flow into the pond.

About 20-30 lbs of spilled lime located at the adit was sampled. It appeared to be fine hydrated lime, not the pebble lime reported by the previous operator, G. Leavell, to be used prior to shut-down around late 1996. It was not possible to sample the contents of the lime silo.

We were not able to get a sample of water discharging from the Blaine Tunnel because the road had not been plowed.

A few pictures were taken of the treatment facility and Pond No. 18. Fig 1a shows the St. Louis Tunnel adit building and the water flowing in a channel past what appears to be a pipe used as to where? may need to be addressed

a high-flow bypass. Flow was colorless and almost free of suspended solids. Figure 1b is a view of the first sedimentation pond looking from the treatment building. Tunnel drainage is spread across this shallow ditch and also an 8 inch pipe outfall hidden behind the pile of rocks in the center of the photo. Figure 2a is a photograph of the treatment building and lime silo, both appearing to be in good condition. Figure 2b shows a concrete channel carrying part of the tunnel discharge but most of the flow runs along the ground adjacent to the concrete ditch. A heavy iron stain is evident but the tunnel is discharging clear water. All of this flow will have to be sent through the treatment building as part of the remediation effort.

Precipitation of Metals

Samples of pH-adjusted St. Louis Tunnel water were analyzed by AA:

Analyte	pH			
	NaOH			Ca(OH)2
	6.38	10.64	11.38	11.46
Zn mg/l	2.63	<0.02	<0.02	<0.02
Mn	2.3	<0.02	<0.02	<0.02
Fe	0.66	<0.02	<0.02	<0.02
Mg	20.3	6.9	0.2	2.9
Ca	240	124	69	374
SO4	610	570		
HCO3				

Acid mine drainage metals such as zinc, iron and manganese are precipitated with lime or caustic to below detection limits at a pH above 10. Below pH 10 no visible precipitation took place. Precipitates were light tan and flocculated and settled rapidly without addition of a polymeric flocculant. Most significant is the decrease in calcium and magnesium concentrations upon raising the pH above pH 10.

A calculated sludge analysis and daily generation assuming tunnel flow of 300 GPM is:

	Lbs/day	Sludge analysis ,%
CaSO4-2H2O	1800	90
Mg(OH)2	173	8.5
Zn(OH)2	14	0.7
Mn(OH)2	13	0.6
Fe(OH)2	5	0.2
Totals	2005	100.0

Analysis of the small amount of precipitate on a filter paper using semi-quant XRF compares fairly close with the calculated composition (see attached XRF data).

Some of the calcium probably precipitates as CaCO3(calcite) by converting bicarbonate to carbonate.

Table 1
St. Louis Tunnel Treatability Tests

The sample of St. Louis Tunnel drainage taken on March 13 was neutralized in the lab to determine:

- Caustic or lime consumption versus pH
- Generation of precipitated solids as a function of pH
- Composition of precipitates
- Removal of metals and other water constituents

Titration with caustic

A 200 cc sample was titrated with 1N NaOH (40 g/l):

pH	cc NaOH	grams NaOH/liter	lbs NaOH/day	Gals NaOH/day	$/day	Solids lbs/day
6.38	0.0		(x3600)			
9.98	0.6	0.115	414	66	60	0
10.64	1.2	0.23	828	131	120	360
11.38	3.6	0.69	2484	394		470
12.27	15.0	2.9	10440	1657		720

Adit flow was estimated at 300 GPM (0.43 MGD) and 50 % caustic at $0.90/gallon

The precipitate at pH 10.64 was analyzed by semi-quantitative XRF;

Component	%	Lbs/day
$Mg(OH)_2$	9.3	33
SiO_2	2.1	8
$Ca(SO_4)\text{-}2H_2O$	86.6	312
$Mn(OH)_2$	0.9	3
$Fe(OH)_3$	0.6	2
$Zn(OH)_2$	0.5	2
Totals	100.0	360

Titration with hydrated lime, $Ca(OH)_2$

A 200 cc sample was titrated with a 5 % suspension of $Ca(OH)_2$ in water:

pH	grams 5% $Ca(OH)_2$	grams $Ca(OH)_2$/l	lbs $Ca(OH)_2$/day	lbs CaO/day	$/day	Solids lbs/day
			(x3600?)			
6.54	-0-					
10.69	0.9	0.23	828	627	25? 33	-
11.46	3.3	0.8	2990 2880?	2260 2181?	120 90?	720

1. Theoretical CaO/2NaOH = 0.7 Actual = 1.0

Delivered cost of –100 mesh CaO assumed at $80 per ton

Table 1 (cont'd)

The solids precipitated using lime to pH 11.46 were analyzed by XRF:

Component	%	Lbs/day
$Mg(OH)_2$	14.0	102
SiO_2	3.2	23
$CaSO_4$-$2H_2O$	81.2	584
$Mn(OH)_2$	0.9	6
$Fe(OH)_3$	0.3	2
$Zn(OH)_2$	0.4	3
Totals	100.0	720

Reactivation of Treatment Facility

The lime silo and building appear to be in good condition. The treatment process should be modified for unattended operation and switching from pebble lime to more reactive hydrated lime to improve pH control and utilization of reagent. Tunnel discharge would flow through a trench to a below-grade mixing box about 5 feet square and deep with a Vee-notch weir plate overflow, agitator, duplicate pH electrodes with ultra-sonic cleaning, and sonic level monitor in a stilling well. Hydrated lime would be metered continuously by ratio control to the tunnel flow. Lime would be fed with a LIW feeder. The system would be connected to a PLC with an auto-dialer to transmit pH, lime feed rate and tunnel flow readings to the treatment facility operator in Rico or Dolores. The silo may have to be modified with a bin-activator because of the low bulk density of hydrated lime compared to pebble lime.

LIW?

PLC - personal laptop computer?

A preliminary cost to reactivate the treatment facility is:

Mixer, 2 HP, 400 rpm, marine prop	$3000
Mixing box, concrete, 5x5x5 with weir plate, installed	4000
Instrumentation, pH monitoring	5000
Sonic liquid level monitor	7000
PLC with auto-dialer	15000
Vibra-screw LIW lime feeder	16000
Installation, 45 % of equipment	23000
Installed cost	**$73000**

building & silo already exist so < cost of Eagle Mine (see lit. report)

Operating cost

Annual operating costs are estimated as follows:

Reagent, bulk hydrated lime, 130 tons per year at $139 per ton, delivered in bulk from Mississippi Lime	20,000
Labor, one third of an operator at $30,000 per year	10,000
Maintenance	5,000
Compliance analytical and reporting (Permit CO-0029793)	21,000
Estimated annual treatment cost	**$56,000**

As compared to $85,000 for O+M and monitoring in lit. report

Conclusions and Recommendations

Zinc loading in the untreated St. Louis Tunnel discharge was under the daily maximum limitation allowed by the permit of 19 lbs per day. The pH was about 0.1 pH unit under the permit limit of 6.5.

Lab treatability tests demonstrated that metals can be precipitated to very low levels by operating at a pH of about 10. Reaction with 200 mesh hydrated lime is very rapid so that a 500 gallon retention time (about 1 minute) is sufficient for complete reaction and efficient utilization of the lime.

Previous operation used coarse pebble lime (CaO) with intermittent feed to the mixing box. pH was not controlled at the addition point but simply monitored at the 002 Outfall to the Dolores River. Generation of about 1000 to 2000 lbs of sludge solids per day is almost entirely due to

These data and calculations indicate that the sludge load entering the sedimentation pond system is predominately gypsum, calcite and magnesium hydroxide, not acid mine drainage metals such as zinc, manganese and iron.

Sampling data from 9 locations at the St. Louis and Blaine Tunnels taken in September,1999 indicates that the Blaine Tunnel contains about 233 mg/l of zinc or about 90 times the St. Louis Tunnel discharge. Assuming a Blaine Tunnel flow of 3 gpm and St. Louis flow of 300 gpm, the calculated contribution of zinc provided by the Blaine drainage is 2.3 mg/l of the 2.6 mg/l. This calculation is overly- simplistic because part of the Blaine Tunnel zinc may precipitate as it flows to the St. Louis adit. Cadmium and copper are also very high in the Blaine Tunnel discharge. Copper hydroxide solubility is very low at pH 6.3, but cadmium minimum solubility is about pH 10-11. The advantages of moving the treatment point to the Blaine Tunnel, from a chemistry standpoint, are:

St. Louis rate from 9/99?

- Please elaborate on advantages. How would St. Louis [illegible] discharge be [illegible]

- Low lime consumption
- Low sludge production

Pond 18 Sludge Sample

A grab sample of sludge was taken at the shoreline of Pond 18 at the entry point from the treatment building. It was far from representative of sludge produced during normal treatment operation :

Ca %	2.4 (by AA)
Mg	1.8 "
Zn	0.48
Fe	7.8
Mn	0.51
SO4	0.57
CO3	4.56
SiO2	43 (by XRF)
Al2O3	10 "

Much of the grab sample appears to have been native soil.

Alternative Treatment Methods

Ion Exchange

A 200 cc sample of St Louis Tunnel water was contacted with 0.5 grams of a chelate IX resin, Chelex 100 which has a high selectivity for zinc and other metals over alkaline earth and alkali metals such as magnesium, calcium and sodium. Results were promising in that zinc was removed to less than 0.02 mg/l while magnesium was only reduced from 20 mg/l to 18 mg/l. Muchmore process development work would be needed before recommending it as an alternative to liming, such as resin capacity, column sizing, regeneration, disposal of eluate,etc.

Sulfiding

A brief test was run with St. Louis drainage water to see if sulfiding with NaSH would remove zinc at the pH of 6.5. No precipitation was visually evident.

precipitation of gypsum, calcite and magnesium hydroxide. Metal hydroxides, primarily zinc and manganese amount to less than 50 pounds of the total sludge production.

The few NPDES discharge monitoring reports issued by Rico Development in 1990 indicate pH levels of 6.5 to 7.5 at Outfall 002. This is too low to consistently control cadmium,zinc and manganese.

A pH of about 10 is required to assure zinc precipitation and sedimentation to less than 1 ml/g which corresponds to a daily mass loading of about 8 lbs needed to comply with the permitted 9.5 lbs per day. Analysis for manganese, although not a compliance metal, is a good rapid check of the treated water quality and can be done in a few minutes with a Hach test kit. This is the procedure being used at the Argo Tunnel in Idaho Springs.

Lime consumption to opeate at the higher pH is about 700 lbs per day or three times the rate used back in 1990. Cost of hydrated lime delivered from Denver in bulk (Van Waters) is $139 per ton or $18,000 per year.

We recommend that a second trip be made in mid or late May to complete the investigation. This would include;

- Inspection of treatment building interior and lime silo discharge equipment.
- Sample of Blaine Tunnel discharge for treatability test similar to work described in this Report.
- Larger sample of St. Louis Tunnel effluent, possibly more representative of spring and smmer operation.
- Inspect sedimentation ponds and take samples of Pond 18 sludge.
- Sample 002 Outfall
- Estimate cost to repair concrete structures at tunnel discharge to permit all flow to report to the treatment point.

Sincerely,

J. E. Reynolds

J. E. Reynolds
JER:ps

Sample: Rico Tunnel Precipitate 2707-5-2 (pH 10.64)
Wed 3/15/2000 at 10:08:36 AM
Method Name: Hazen General - Solids

XRF SEMI-QUANTITATIVE ANALYSIS

Analyte	Concentration	Intensity
H2O	0.0 Wt %	0.0
CO2	0.00 Wt %	0.0
Na2O	0.1781 Wt %	0.2
MgO	6.4155 Wt %	44.5
Al2O3	0.0988 Wt %	2.1
SiO2	2.0996 Wt %	103.6
P2O5	0.0000 Wt %	-19.9
SO3	42.8755 Wt %	1615.8
Cl	0.0681 Wt %	10.1
K2O	0.0000 Wt %	-6.0
CaO	46.4822 Wt %	8830.0
Sc2O3	0.0845 Wt %	10.8
TiO2	0.0045 Wt %	0.8
V2O5	0.0084 Wt %	2.5
Cr2O3	0.0059 Wt %	3.1
MnO	0.7186 Wt %	594.1
Fe2O3	0.4799 Wt %	474.9
CoO	0.0058 Wt %	1.7
NiO	0.0128 Wt %	5.3
CuO	0.0269 Wt %	15.8
ZnO	0.3686 Wt %	302.5
GaO	0.0030 Wt %	3.4
GeO2	0.0016 Wt %	1.9
As2O3	0.0000 Wt %	-4.2
SeO2	0.0009 Wt %	1.8
Br	0.0007 Wt %	2.5
Rb2O	0.0000 Wt %	-3.9
SrO	0.0350 Wt %	158.6
Y2O3	0.0002 Wt %	0.9
ZrO2	4.1598E-5 Wt %	0.2
Nb2O5	0.0017 Wt %	8.1
MoO2	0.0043 Wt %	23.5
HfO2	0.0006 Wt %	0.3
WO3	0.0059 Wt %	1.5
IrO2	0.0000 Wt %	-2.8
Hg2O	0.0000 Wt %	-0.6
Tl2O	0.0000 Wt %	-1.5
PbO	0.0047 Wt %	5.4
Bi2O3	0.0000 Wt %	-6.4
Ag2O	0.0028 Wt %	26.0
CdO	0.0000 Wt %	-2.4
In2O3	0.0000 Wt %	-2.0
SnO	0.0014 Wt %	13.5
Sb2O3	0.0000 Wt %	-1.7
TeO2	0.0001 Wt %	0.5
I	0.0001 Wt %	1.1
BaO	0.0007 Wt %	4.3
La2O3	0.0023 Wt %	10.3
Ce2O3	0.0000 Wt %	-10.8
ThO2	3.4569E-5 Wt %	4.8E-2
U2O3	0.0002 Wt %	0.7

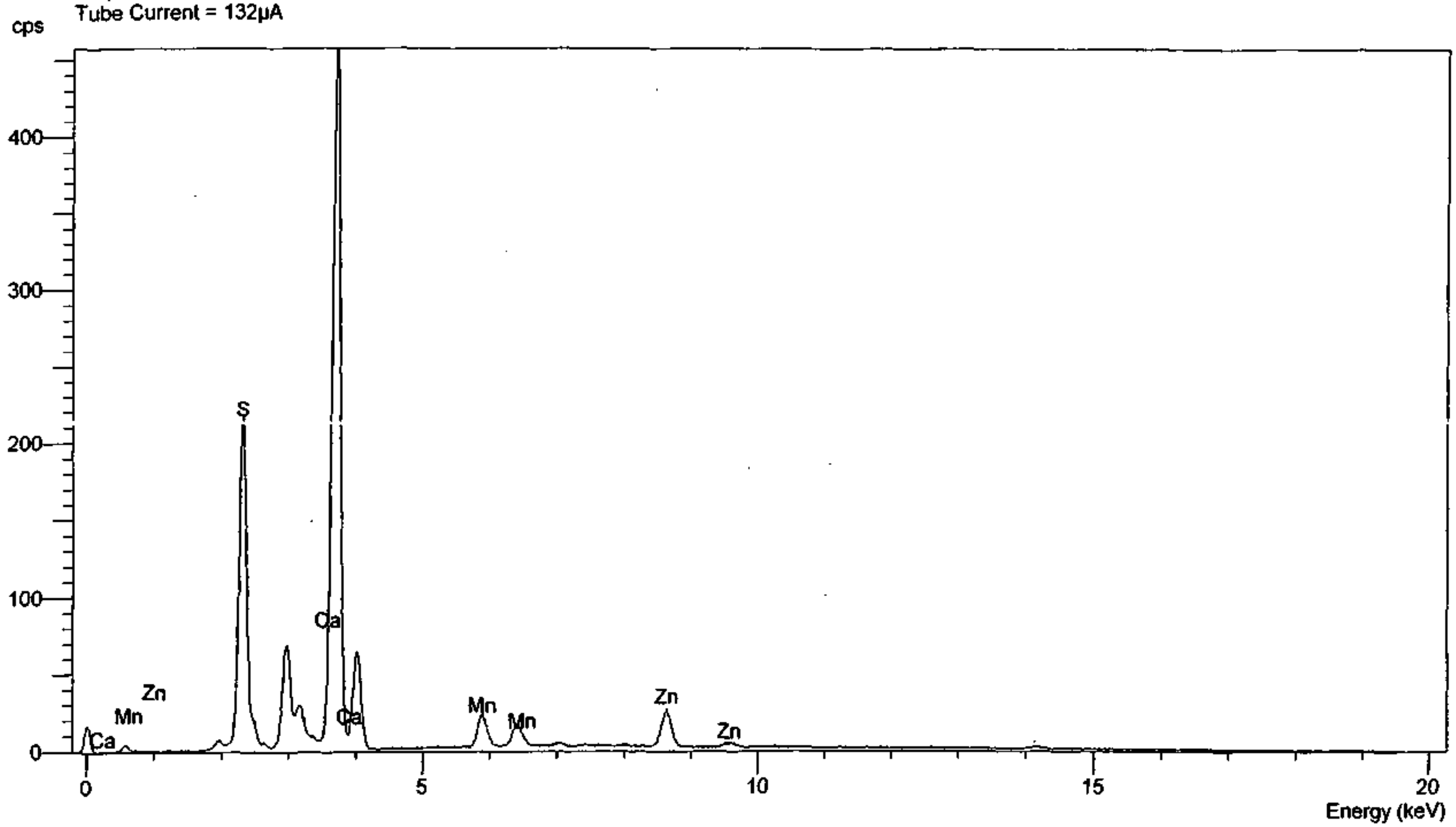
XRF SEMI-QUANTITATIVE ANALYSIS

Sample: 9561 2707-5-3
Fri 3/17/2000 at 3:01:15 PM
Method Name: Hazen General - Solids
NaOH NEUTRALIZATION pH 11.38

Analyte	Concentration	Intensity
H2O	0.0 Wt %	0.0
CO2	0.00 Wt %	0.0
Na2O	0.3179 Wt %	0.4
MgO	6.5115 Wt %	43.2
Al2O3	0.0000 Wt %	-20.0
SiO2	1.6415 Wt %	74.8
P2O5	0.0000 Wt %	-15.0
SO3	51.6276 Wt %	1893.6
Cl	0.1040 Wt %	13.9
K2O	0.0000 Wt %	-2.4
CaO	38.5166 Wt %	7098.5
Sc2O3	0.0460 Wt %	6.3
TiO2	0.0311 Wt %	5.6
V2O5	0.0144 Wt %	4.5
Cr2O3	0.0033 Wt %	1.8
MnO	0.4872 Wt %	416.0
Fe2O3	0.3338 Wt %	341.3
CoO	0.0046 Wt %	1.4
NiO	0.0118 Wt %	5.0
CuO	0.0247 Wt %	14.7
ZnO	0.2556 Wt %	212.9
GaO	0.0048 Wt %	5.4
GeO2	0.0024 Wt %	2.9
As2O3	0.0000 Wt %	-18.1
SeO2	0.0004 Wt %	0.9
Br	0.0014 Wt %	4.8
Rb2O	0.0000 Wt %	-4.4
SrO	0.0247 Wt %	114.1
Y2O3	0.0006 Wt %	2.9
ZrO2	0.0000 Wt %	-7.5
Nb2O5	0.0015 Wt %	7.6
MoO2	0.0035 Wt %	19.3
HfO2	0.0114 Wt %	6.0
WO3	0.0000 Wt %	-0.9
IrO2	0.0000 Wt %	-4.1
Hg2O	0.0000 Wt %	-1.3
Tl2O	0.0000 Wt %	-4.2
PbO	0.0044 Wt %	5.2
Bi2O3	0.0003 Wt %	0.4
Ag2O	0.0018 Wt %	17.2
CdO	0.0003 Wt %	3.2
In2O3	0.0001 Wt %	1.3
SnO	0.0015 Wt %	16.2
Sb2O3	0.0003 Wt %	2.9
TeO2	0.0000 Wt %	-0.7
I	0.0000 Wt %	-7.4
BaO	0.0009 Wt %	5.5
La2O3	0.0037 Wt %	17.4
Ce2O3	0.0041 Wt %	10.2
ThO2	0.0000 Wt %	-0.7
U2O3	0.0001 Wt %	0.4

pH 10.64, NaOH NEUTRALIZE

RICO Tunnel Drainage Precipitate (15-Mar-2000 10:03)
Fixed Conditions : General (air)
Acquisition livetime = 32.3 s, realtime = 59.9 s
Tube Current = 132μA



Sample: 9561 2707-6-2
Fri 3/17/2000 at 3:31:15 PM
Method Name: Hazen General - Solids
Ca(OH)$_2$ NEUTRALIZATION pH 11.46

XRF SEMI-QUANTITATIVE ANALYSIS

Analyte	Concentration	Intensity
H2O	0.0 Wt %	0.0
CO2	0.00 Wt %	0.0
Na2O	1.4134 Wt %	2.2
MgO	9.6841 Wt %	79.6
Al2O3	0.7211 Wt %	17.2
SiO2	3.1756 Wt %	177.7
P2O5	0.0000 Wt %	-21.3
SO3	35.4325 Wt %	1184.6
Cl	0.0363 Wt %	5.2
K2O	0.0000 Wt %	-4.4
CaO	48.0465 Wt %	8682.4
Sc2O3	0.0412 Wt %	4.9
TiO2	0.0305 Wt %	4.7
V2O5	0.0122 Wt %	3.9
Cr2O3	0.0048 Wt %	2.7
MnO	0.7374 Wt %	646.4
Fe2O3	0.1931 Wt %	202.7
CoO	0.0002 Wt %	0.1
NiO	0.0094 Wt %	4.0
CuO	0.0259 Wt %	15.7
ZnO	0.3614 Wt %	306.3
GaO	0.0036 Wt %	4.1
GeO2	0.0000 Wt %	-0.5
As2O3	0.0072 Wt %	12.5
SeO2	0.0000 Wt %	-0.6
Br	0.0020 Wt %	7.0
Rb2O	0.0004 Wt %	1.8
SrO	0.0207 Wt %	96.9
Y2O3	0.0026 Wt %	12.6
ZrO2	0.0010 Wt %	4.9
Nb2O5	0.0028 Wt %	13.7
MoO2	0.0019 Wt %	10.4
HfO2	0.0056 Wt %	3.0
WO3	0.0150 Wt %	3.9
IrO2	0.0000 Wt %	-0.4
Hg2O	0.0000 Wt %	-1.5
Tl2O	0.0000 Wt %	-3.0
PbO	0.0000 Wt %	-0.7
Bi2O3	0.0018 Wt %	2.3
Ag2O	0.0022 Wt %	23.3
CdO	0.0001 Wt %	1.2
In2O3	0.0000 Wt %	-0.6
SnO	0.0018 Wt %	19.7
Sb2O3	0.0004 Wt %	3.9
TeO2	0.0007 Wt %	6.6
I	0.0000 Wt %	-1.5
BaO	0.0000 Wt %	-2.7
La2O3	0.0036 Wt %	18.1
Ce2O3	0.0013 Wt %	3.4
ThO2	0.0001 Wt %	0.1
U2O3	0.0000 Wt %	-1.0

Sample: 9561 2707-6-1 POND 18 SLUDGE

XRF SEMI-QUANTITATIVE ANALYSIS

Fri 3/17/2000 at 3:16:20 PM
Method Name: Hazen General - Solids

Analyte	Concentration	Intensity
H2O	0.0 Wt %	0.0
CO2	0.00 Wt %	0.0
Na2O	0.1755 Wt %	0.8
MgO	3.7199 Wt %	86.6
Al2O3	10.3280 Wt %	785.6
SiO2	43.3830 Wt %	6789.5
P2O5	0.2737 Wt %	76.5
SO3	0.7389 Wt %	8.8
Cl	0.0240 Wt %	1.8
K2O	3.9847 Wt %	399.2
CaO	6.2372 Wt %	774.7
Sc2O3	0.0426 Wt %	6.6
TiO2	0.9261 Wt %	186.6
V2O5	0.1584 Wt %	46.7
Cr2O3	0.0078 Wt %	3.9
MnO	1.2183 Wt %	790.5
Fe2O3	25.7173 Wt %	18245.8
CoO	0.0777 Wt %	30.2
NiO	0.0256 Wt %	7.4
CuO	0.2032 Wt %	80.8
ZnO	1.5613 Wt %	868.1
GaO	0.0066 Wt %	4.9
GeO2	0.0000 Wt %	-2.8
As2O3	0.0074 Wt %	8.1
SeO2	0.0002 Wt %	0.2
Br	0.0000 Wt %	-2.1
Rb2O	0.0382 Wt %	103.4
SrO	0.5563 Wt %	1597.6
Y2O3	0.0156 Wt %	46.6
ZrO2	0.0852 Wt %	258.0
Nb2O5	0.0070 Wt %	20.7
MoO2	0.0108 Wt %	35.8
HfO2	0.0202 Wt %	7.2
WO3	0.0080 Wt %	1.4
IrO2	0.0000 Wt %	-3.5
Hg2O	0.0050 Wt %	2.5
Tl2O	0.0056 Wt %	3.1
PbO	0.1883 Wt %	139.7
Bi2O3	0.0000 Wt %	-9.3
Ag2O	0.0086 Wt %	54.3
CdO	0.0052 Wt %	32.9
In2O3	0.0005 Wt %	3.1
SnO	0.0039 Wt %	26.3
Sb2O3	0.0040 Wt %	25.9
TeO2	0.0012 Wt %	7.2
I	0.0008 Wt %	6.0
BaO	0.1765 Wt %	698.7
La2O3	0.0187 Wt %	56.6
Ce2O3	0.0231 Wt %	36.9
ThO2	0.0000 Wt %	-13.3
U2O3	0.0000 Wt %	-8.3

DATE: January 25, 2000

Mike Watson
Pete Lien & Sons
P. O. Box 440
Rapid City, SD 57709

Dear Mr. Watson:

Analyses below are for a Hydrated Lime received 12/13/99.

LAB #: 5283

% Total $Ca(OH)_2$	94.7
% Available $Ca(OH)_2$	90.3
% Magnesium Oxide	0.48
% Aluminum Oxide	0.39
% Iron Oxide	0.20
% Sulfur	0.01
% Silica	0.34
% Loss on Ignition	25.7
% Free Moisture	<0.01

MAXIM TECHNOLOGIES, INC.

Dan Krikac
Inorganic Laboratory Supervisor

Kate Shreves
Kate Shreves
Microbiologist

Mississippi Lime Company

General Offices
Alton, Illinois 62002-2247

7 Alby Street
P.O. Box 2247
Phone: 618-465-7741

MISSISSIPPI ROTARY PLANT

Hydrated Lime

Code MR-200

Meets AWWA and Water Chemicals Codex Specifications

Chemical Analysis

$Ca(OH)_2$	96.0%	to	97.2%
CaO - Equivalent	72.6	to	73.6
CaO Total	73.6	to	74.3
$CaCO_3$	0.65	to	1.75
$CaSO_4$	0.05	to	0.10
S - Equivalent	0.012	to	0.024
SiO_2	0.38	to	0.65
Al_2O_3	0.20	to	0.30
Fe_2O_3	0.07	to	0.10
MgO	0.40	to	0.55
Free H_2O	0.04	to	1.0
P_2O_5	0.008	to	0.012
MnO	0.0015	to	0.0025

Physical Analysis

Minus 100 Mesh	100.0%
Minus 200 Mesh	98.5%
Minus 325 Mesh	92.0%

Density - Pounds per ft^3 . . . . . . 20 to 32
(Depending upon degree of compaction)

Approved.